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W. L. H.

An Essay on Trachitis.

by

Mondecai C. Myers.

of

Georgetown. South Carolina

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Vol.

{ Trachitis -
Croup -
Cynanche trachealis
all the same

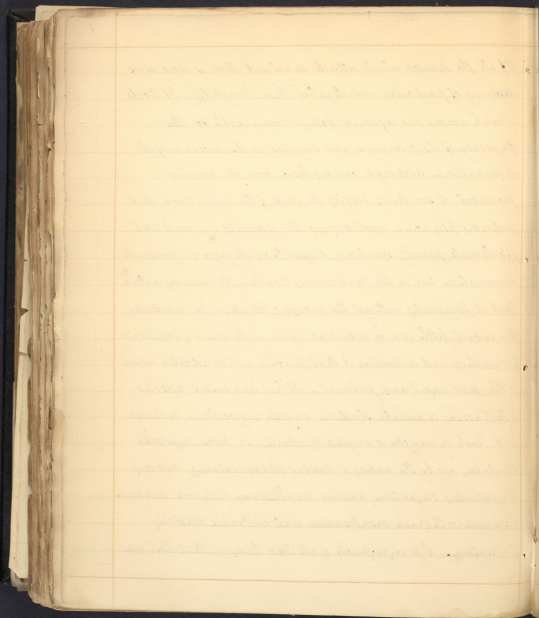
1870 Jan 27
A. J. B.

The City of New York

Shelton T. Burt

Secretary of the Board of Education

Of all the diseases which attack mankind there is none more
deserving of particular investigation than Trachitis. It holds
a rank among our infantile diseases remarkable for the
frequency of its occurrence and singular in the violence of its
termination, — although various have been the remedies
prescribed it sometimes baffles the skill of the enlightened and
pudicious physician and damps the prospects of a fond and
affectionate parent, sometimes it offers to us the hope of a favourable
termination but in the next moment such is its insidious nature
that it terminates with all the agonies of death. — In considering
this subject little can be advanced by me as the result of experience
or reflection and in treating it that practice will be adopted which
is the most useful and pertinent. — It has been called affectio
orthopnoea, cyranche stridula, angina suffocatoria, by Cullen
and Rush cyranche or angina trachealis, by Home suffocatio
stridula, also by the names of morbus strangulatorius, morbus
trunculentus Infantum, angina membranacea polyposa, cyranche
laryngea, orthopnoea membranacea and by Frank trachitis
Infantum. — The impropriety of all these terms is, that they give



up but a partial view of the phenomena of the disease and not a knowledge of the disease itself. The last is adopted as the most appropriate name conveying the idea that it is of the same nature as pleuritis, peritonitis &c.

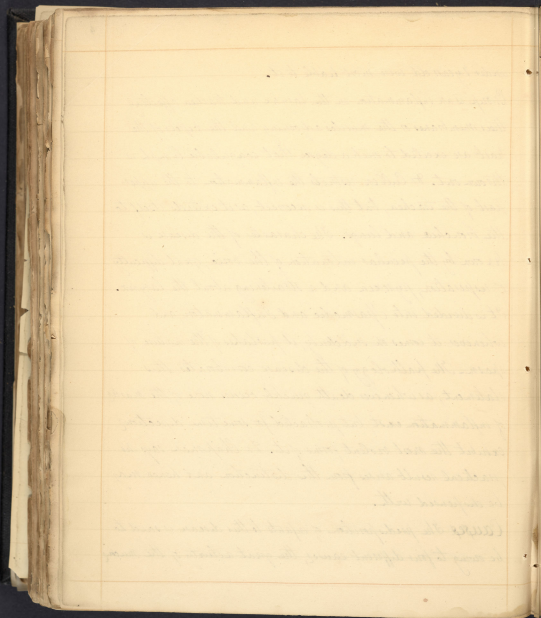
The credit is given to Dr Hume of Edinburgh, for having first described this disease which was published in an essay in 1765, but it must have been known previous to that time as appears from Dr Harris account of the Morbus stragulatious written in 1749 and mention is made of its prevailing by Ghise an Italian physician in 1748. It was even not unknown to Boerhaave as is seen from his aphorism No 801. The first account of it in this country was as early as 1770 when Dr Rush advanced the opinion it was a spasmodic affection. This appeared in a letter written by him to Dr Miller of London, but afterwards as appears from his Medical inquiries published in 1794, he thought there was another species of the disease, which he denominated *Opnache humida trachealis*, the character which he assigns to the former disease is that it makes its appearance suddenly and at night, is palliated by antispasmodic medicines

has well marked intermissions and is not attended by any discharge from the trachea, but the latter is more slow in its progress, comes on during the day, requires the most powerful remedies to overcome it, and as it advances increases in violence. The next writer is Dr. Bard who published in 1771 an account of the sore throat distemper which prevailed in the city and county of New York. He thought it similar to the suffocative stridula of Dr. Hume and describes it as being infectious - this he supposed was not owing to any miasmatic state of the atmosphere, as it prevailed in certain families, while persons in an adjoining residence, were exempt from it, the circumstance of its being infectious, and the lancet being so decidedly injurious would induce us to infer that it was not genuine croup, but more of the putrid sore throat with croupy symptoms supervening on it. Dr. Chalmers in his account of the disease of Carolina, published in 1776 has accurately described this affection, He calls it the suffocating or catarrhal peripneumony of children, and says that it affects the voice very sensibly, that the hoarseness is peculiar at the time of coughing or crying, there was great restlessness with difficulty of inspiration and adds that children

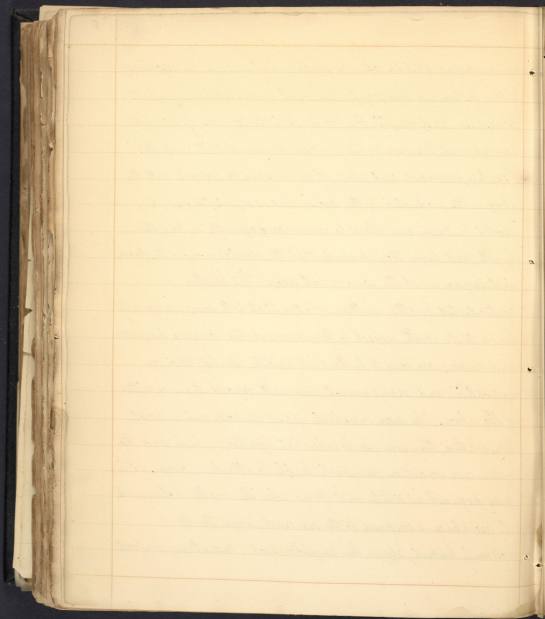
under 3 years old were most liable to it.

Croup is an inflammation in the larynx and trachea affecting their membranes or the muscles adjoining and the vessels of the part are excited to such a degree that coagulable lymph is thrown out. Dr Cullen restricts the inflammation to the upper part of the trachea, but this is incorrect, as it extends itself to the bronchia and lungs. The character of the disease is known by the peculiar intonation of the voice, great difficulty of respiration, dyspnoea and a straining about the larynx. It is divided into Spasmodic and Inflammatory, and whenever it comes on suddenly, it partakes of the nature of spasm. The pathology of the disease corroborates this statement, as whenever death quickly occurs none of the marks of inflammation exist, but protracted for some time, dissections exhibit the most violent forms of it. Dr Chapman says no practical result arises from this distinction and hence may be dispensed with.

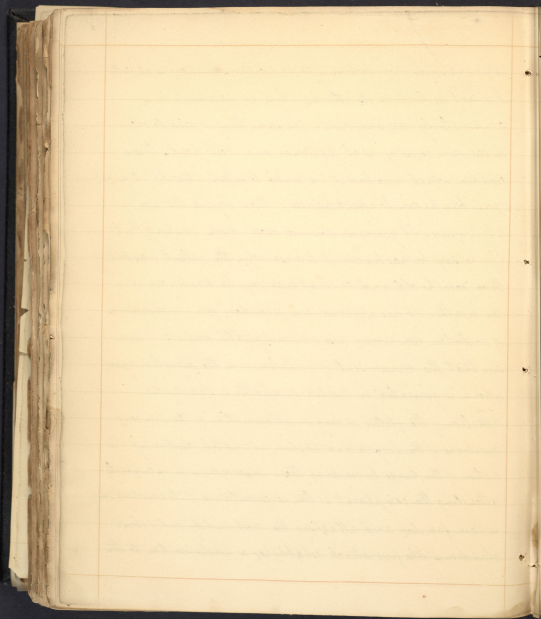
Causes The predisposition of infants to this disease is said to be owing to four different causes, the great activity of the mucous



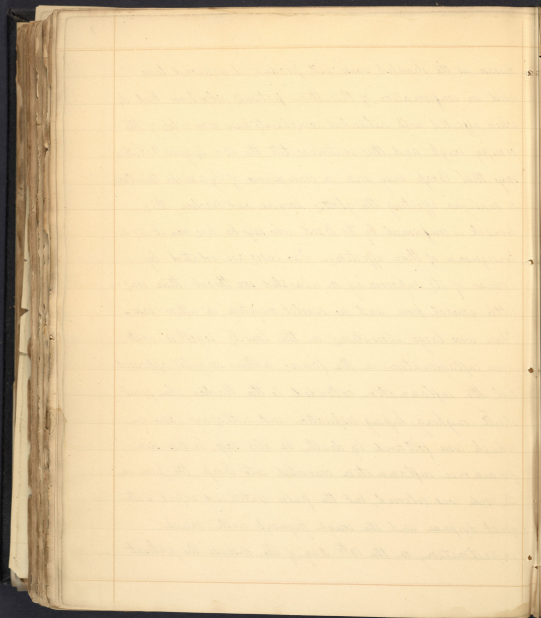
system during childhood, the facility with which the affections of this system are developed, the great susceptibility of infants to disease, and finally the contracted dimensions of the glottis, larynx and trachea in them, when compared with adults. - Sex, temperament and education are said to cooperate with the above in the production of the disease, and as regards the first, it is asserted by Sumner and Albers to occur more frequently in boys than in girls, and hence they conclude that the development of the trachea and larynx is not the same in both sexes. This assertion is contradicted by other authors, who say that both sexes are equally liable to it. With respect to temperament, the sanguine, lymphatic and nervous, are said to be the most readily affected, and on education and management more will depend than on either of the above. The more immediate causes are cold and a moist temperature, they give rise to catarrhal affections, which leave the system in a condition peculiarly liable to attacks of croup. It is more frequent in winter and spring when the weather is changeable, its prevalence is confined to the sea coast, where the air is extremely humid, also in the neighbourhood of mountains or about



lakes and rivers. It is endemic to particular situations as at Lake
 it is most inveterate in its attacks, while at Edinburgh it is
 comparatively rare and mild. The same thing is said to occur
 in our own country, as at Baltimore and Fells point. These
 children which have had it are liable to future attacks, it has
 rarely been known to affect adults or those beyond the age of
 12 or 14 years. It generally does not occur before weaning, but
 Cheyne says he has known it to arise when the patient was but
 three months old and Dr. Chapman says he has known it in
 the month. It has appeared in a secondary form in consequence
 of irritation from worms, also from indigestible food. Dr. Wilson
 says that the primary seat of irritation is in the digestive organs
 whence is generated by morbid sympathy a spasmodic
 affection of the glottis, ending in inflammation of the mucous
 membrane of the larynx and trachea, ultimately destroying the
 action of the lungs by rendering them impervious. A peculiarity
 attending the complaint is the circumstance of its existing in
 certain families, and attacking the most ruddy and robust
 children. The first attack establishes a predisposition to the

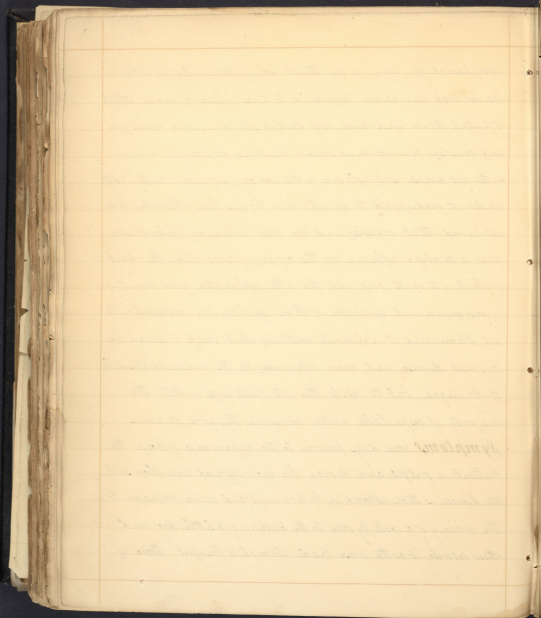


disease as the slightest cause will produce it a second time and in confirmation of this those patients who have had it when affected with catarrhal complaints have more or less of the croupy cough and this continues till the 12 or 14 year. Dr Cullen says that Croup may arise in consequence of Cyranche tonsillitis or maligna affecting the glottis, larynx and trachea, this remark is confirmed by Dr Bard who says he has seen it as a consequence of those affections. Two cases are related by Fornas of its supervening on ulcerated sore throat, there was little general fever and no scarlet eruption in either case. There were large ulcerations in the tonsils together with more inflammation in the fauces nothing singular appeared till the inflammation extended to the trachea, when violent coughing, hoarse respiration and restlessness came on, which were followed by death, he also says, he has seen pneumoniae inflammation converted into Croup, the pain in the side was relieved, but the pulse continued rapid with great dyspnea and the cough frequent, with much expectoration, on the 10th day of the disease the patient

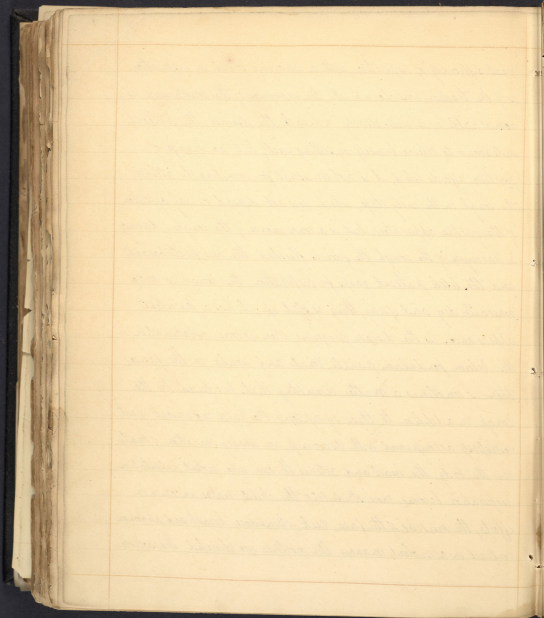


complained of pain in his throat which terminated in Croup.—
 Underwood has known happen it to take place during an attack
 of putrid thrush and Rush says he has seen it succeed small pox
 and measles. It is not an uncommon occurrence for Croup to supervene
 on the last disease, as its influence on the economy is of such a nature, as to
 render it predisposed to an attack.— It has been attempted to be
 explained, that measles and the other cutaneous phlogmasia,
 have a morbid influence on the organs of respiration, the effect
 of which is to excite Croup, and this is the explanation given why it is
 a consequence and symptom of those affections. In contradiction to
 all I have said Dr Caldwell contends that Croup is always an
 original disease, and never supervenes on the erysipelas tonsillaris
 or maligra, but to refute this all I will say is, that the
 majority of respectable writers concur in the above opinion.—

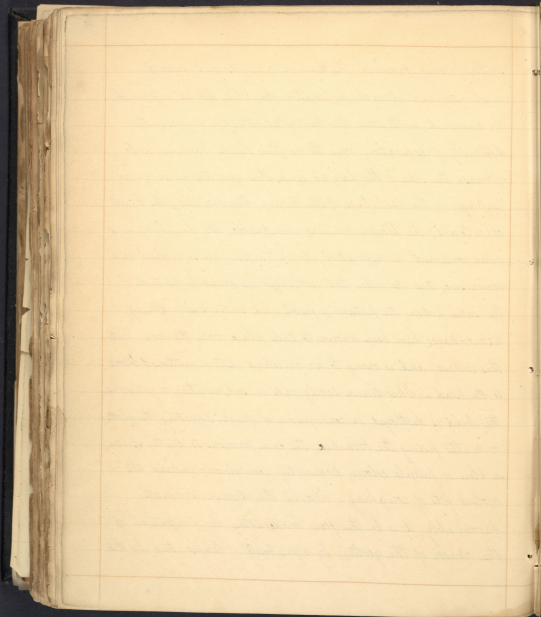
Symptoms. some days previous to the appearance of Croup the
 patient is fretful and drowsy, the eyes suffused and blood shot,
 the disease is then ushered in by hoarseness and cough, compared to
 the crowing of a cock, by some to the barking of a little dog, and
 others describe it as the noise made through a trumpet, there is



great difficulty of respiration, with a wheezing sound on inspiration, as if the trachea was clogged up, the expression of the countenance is remarkable and will clearly indicate the disease, the patient endeavors to relieve himself by sitting erect, but no change of posture affords relief, it is not unusual for vomiting to attend the cough in the early stage, which does not depend on any affection of the gastric apparatus, but is a consequence of the cough - during a paroxysm of the cough the face is flushed, the eyes protuberant and the little patient gasps for respiration, the cough is more generally dry and if any thing is spat up, it has a purulent appearance. As the disease progresses, there is some inflammation in the velum pendulum palatæ, tonsils and uvula, on the fauces there is sometimes a matter resembling that produced by the cough, in addition to these symptoms the pulse is frequent, great restlessness accompanied with sweating, an uneasy sensation of heat over the body, the heart and arteries thrown into violent palpitation, respiration becomes more stridulous, the child makes uncommon efforts, the muscles of the face, neck, shoulders, breast and abdomen contract in a violent manner, the nostrils are dilated, the whole

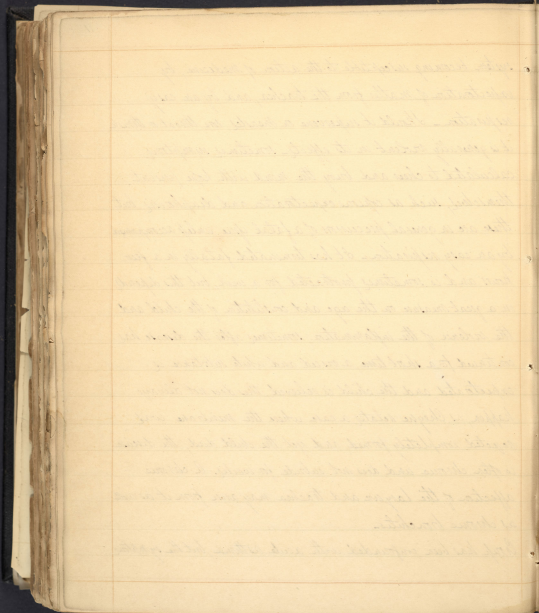


system becomes convulsed, the larynx ascends and descends inaptly and at each inspiration the whole thorax and shoulders are raised up, with some the horizontal situation increases the difficulty of respiration, some throw their heads backwards to increase the size of the larynx, and thus give the air an easier passage, in the last stage of the disease, the muscles of the breast cease to act, the thorax remains immovable, the diaphragm is alone concerned in respiration, its contractions are so violent and convulsive, that the intercostal cartilages are forced to partake of the same action, the patient is feeble and continually dozing, haemorrhages have been known to take place from the nose, but this is rare, and is owing to an increased determination of blood to the head - This disease rarely ends in suppuration or gangrene, the child is destroyed in consequence of spasm affecting the glottis or matter filling the bronchia, the face passes to death assumes a blue or purple colour, frequently convulsions succeed the violent fits of coughing - Should the disease terminate favourably, it is by the fever moderating, by a cessation of the spasm of the glottis, by equality of temperature, by the



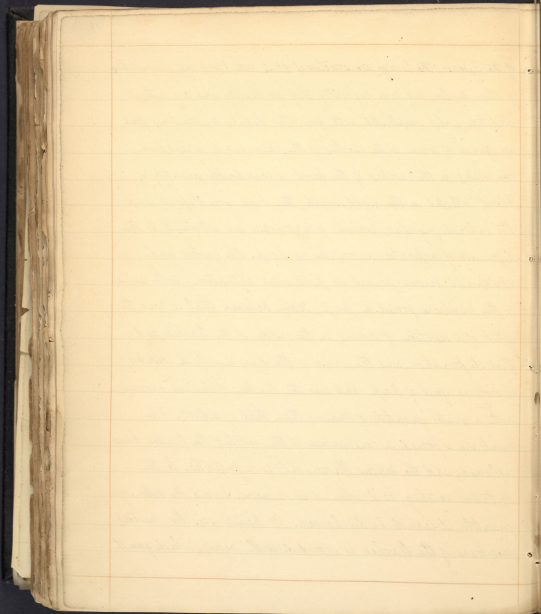
system becoming susceptible to the action of medicine, by expectoration of matter from the trachea, and by an easy respiration - Should it supervene in measles, or throat or thrush it is generally violent in its effects - sometimes symptoms calculated to cheer and buoy the mind with hope present themselves, such as copious expectoration and dysphonia, but these are in general precursors of a fatal issue unless accompanied by an easy respiration - It has terminated fatally in a few hours and is sometimes protracted for a week, but this depends in a great measure on the age and constitution of the child and the violence of the inflammation, sometimes after the disease has continued for a short time, a viscid and white substance is expectorated and the child is relieved, this does not always happen, as Cheyne relates a case where the membrane was rejected completely formed, and yet the child died, the disease is often chronic and does not subside for weeks. A chronic affection of the larynx and trachea may arise from it as well as chronic bronchitis.

Croup has been confounded with acute asthma, but the symptoms

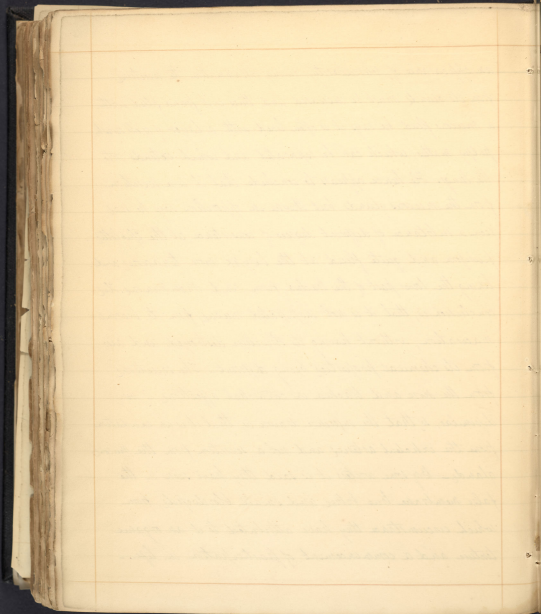


are well marked in each. In the latter the attack is sudden, there is very little fever, its character is truly spasmodic, there is some vomiting in its symptoms attended with a vomiting, purging, or belching, the false membrane never exists, and its seat is in the thorax and not in the trachea and larynx. appearances on dissection. There is a great similarity in the external appearance of the body, in those who have died of this disease and those who die of asphyxia, and particularly when the disease is short and violent, and the patient has perished from suffocation. The face is pale and livid, the eyes projecting, and the veins of the neck engorged, sometimes we find a serous effusion at the base of the cranium, or in the cavities of the brain, and frequently an engorgement of the vessels which penetrate the cerebral substance, but we can never perceive any alteration in the substance itself, there is a lymphatic incrustation lining the trachea with a substance of lep tenacity, extending into the minutest ramifications of the bronchia, the thickness and appearance of the membrane varies, and this in proportion to the violence and duration

of the disease, the lungs are sometimes filled with blood and accumulation of other matter, but more frequently they are healthy and in a natural condition, unless complicated with some other disease, we sometimes find an effusion of serum in the cavity of the pleura and pericardium, concretions in the cavity of the heart, a considerable quantity of blood collected in the right auricle, the vena cava Superior and the internal jugular, which phenomena are attributed to the difficulty of respiration accompanying Croup. The gastric and abdominal viscera present no particular alteration - with regard to the membrane formed in Croup, some believed that it was the effect of a secretion of mucus on the inside of the trachea, and that its formation was the cause of the disease. - Rush considers it only an effect of Croup, and says the trachea of children abounds with a greater quantity of mucus than that of adults. The membrane is formed a consequence of the vessels of the trachea being inflamed, and the mucus thrown out, is in proportion to the irritation existing, and when it is increased beyond the ordinary quantity, it cannot be discharged. Dr Baillie says the mucous membrane of the trachea is crowded with vessels, which give it

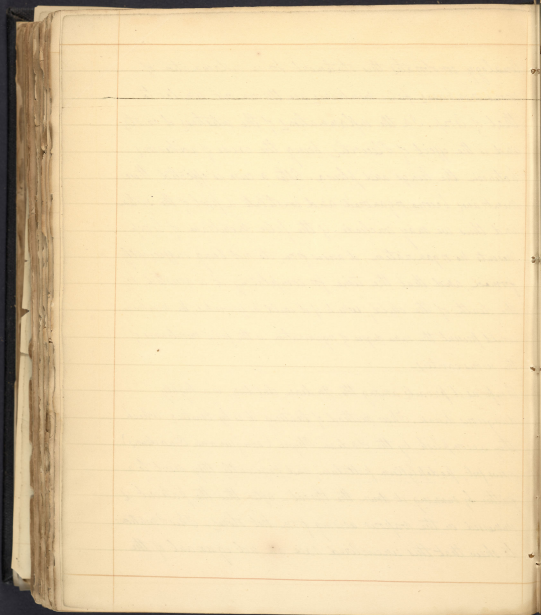


an appearance of vascularity, during inflammation the secretion from its glands must be increased and thus is it found filled with a mucous fluid, he says it is often lined with a layer of yellowish pulpy matter, which can be separated and which extends into the lungs. He hence appears to conclude that it is a secretion from the mucous glands, but Cheyne in opposition says he has seen a substance of different degrees of consistence, at the Epiglottis firm and quite fluid, at the larynx more tenacious and lining the lower part of the trachea, firm and membranous. His conclusion is, that it is not inspissated mucus, from its bearing maceration, without having its structure destroyed, and also from its chemical properties being different. The secretions from the nose and trachea in catarrhal affections is very dissimilar, so that the inference drawn is, that it is an exudation from the exhalant arteries and not a secretion from the mucous glands. By some writers it is said they have seen in the false membrane true fibres and small bloodvessels, from which circumstance they have attributed to it an organic texture, and a commencement of participation in life. -



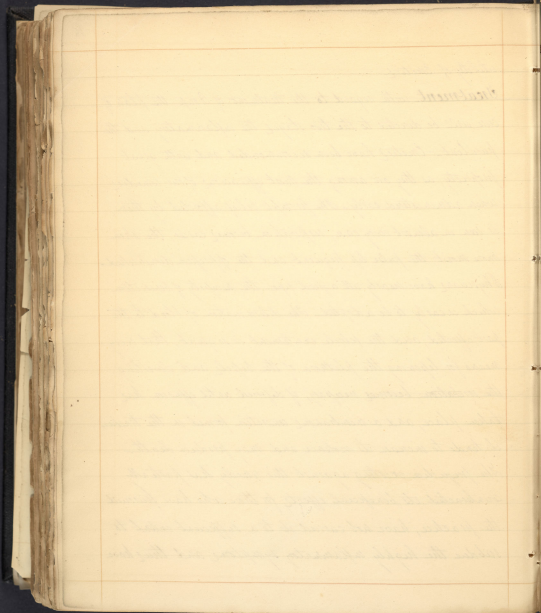
Analogy corroborates this statement, for in inflammation of serous membranes, false membranes are thrown out similar to that of Psoas. In the inflammation of the intestines it exists and is the effect of Pleuritis, being the cause of adhesions between the lungs and pleura. After a cure is effected, these membranes become organized and constitute a part of the system, and thus we may conclude, if the false membrane of Psoas presents no organization, it arises from its not being sufficiently formed, and that the time for completing it is arrested by the death of the child, which if it could be prevented, the membrane would present the same degree of organization as the false membranes of the serous cavities.

Psoas as it prevails among the Indian children, is a highly dangerous disease. Their method of treating it is by Emetics, which they accomplish by the Indian Physic (*sanguinaria Canadensis*) *coronilla*, *podophyllum peltatum*, and frequently they resort to a farther by passing it down the throat - after this the patient is immersed in the vapours arising from hot stones - This I mention to show that this uncivilized race are not ignorant of the

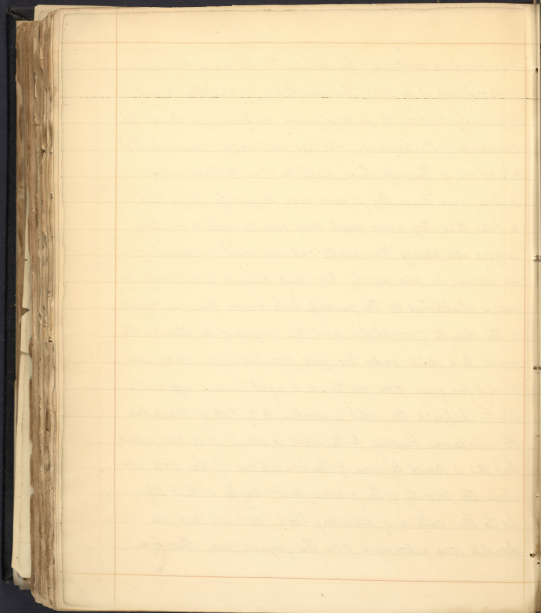


utility of Emetics.

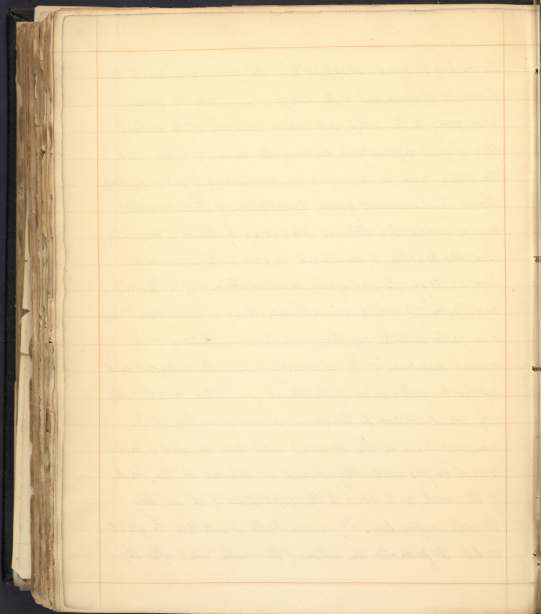
Treatment with regard to the treatment of Croup, the plan of cure will be divided to the two stages, the inflammatory and the purulent. - Emetics have been recommended and with great propriety, as they are among the most efficacious of our remedies when administered early. - The prompt relief afforded by them, is seen in almost every case, respiration becomes easier, the skin more moist, the pulse less frequent, and the oppression diminished. Physicians have nearly all agreed upon the necessity of evacuation which is easily to be adopted. - The determination of blood to the part affected, and the febrile excitement is so great, that every means for lessening the plethora of the vessels, and diverting the circulation, becomes necessary, if deferred until effusion has taken place, and a membranous concretion formed in the trachea, it tends to increase its violence and may produce death. - The prejudice existing against this remedy has partially counteracted its beneficial effects; for those who have pursued the practice, have not carried it to a sufficient extent to subdue the highly inflammatory symptoms, and thus have



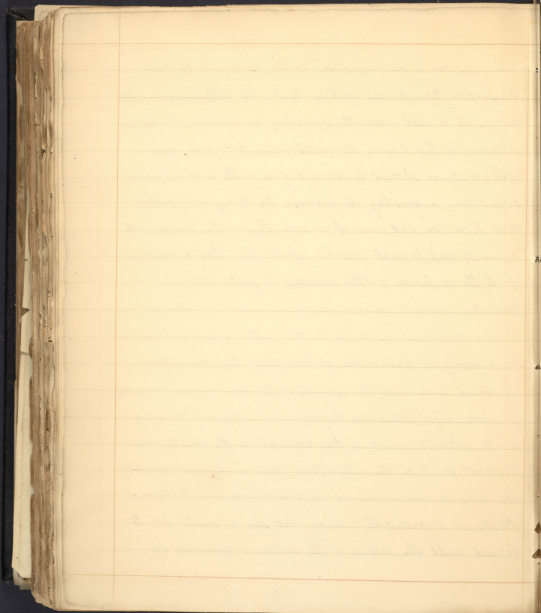
been failed in overcoming the disease. This has arisen from an erroneous impression that the constitution of children is not sufficiently vigorous to undergo active depletion, but to use the language of Dr. Chapman, who has judiciously remarked that almost all of their affections partake of an inflammatory nature, and hence they require more frequently to be bled, he states that they recover much sooner from the effects of vomiting, purging, and bleeding than adults and say whilst a remnant of life remains, he never considers their acute diseases as desperate. No rule is established for the quantity to be drawn, this will depend on the strength of constitution and the violence of the attack. In general to a child under two years, from two to four ounces and to one of five years from four to six or eight ounces is sufficient. By Dr. Chapman the credit is ascribed to Dr. Rick of Alexandria for introducing bleeding to the extent to which it is now carried, but this is denied by some of the practitioners of New York who claim the priority of the practice for Dr. Bayley of that city - As to the method of detracting blood, medical men are divided some advising it from the jugular vein, others from



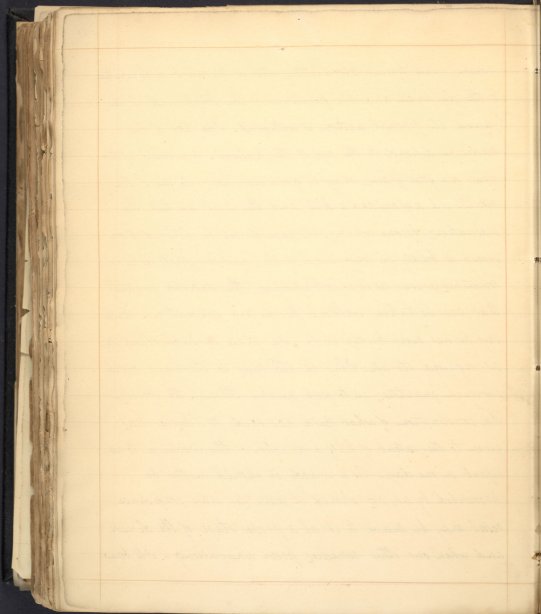
the back of the head. It appears that the preference is due to the latter, for independent of the danger arising from the former mode owing to the restlessness and uneasy condition of the patient, there is great difficulty in knowing the quantity taken and the orifice may continue open in consequence of fits of coughing. Should the disease not yield, a repetition of these remedies may be resorted to. Topical bloodletting by leeches is frequently used, this practice is condemned by some writers - reasoning from analogy, its good effects must be obvious, if a Pharyngitis and Tonsillitis which are inflammations of serous membranes or a gastric enteric affection, which are irritations of the mucous membrane of the alimentary canal, the acknowledged superiority of this plan of treatment is granted on all sides, why would it not be beneficial in inflammation of the same membrane in the trachea. Leeches may be used if leeches cannot be procured, they should be applied to the back of the neck, and never to the front part of it, as they threaten suffocation. The warm bath is entitled to great credit, it promotes the action of the emetic used after it,



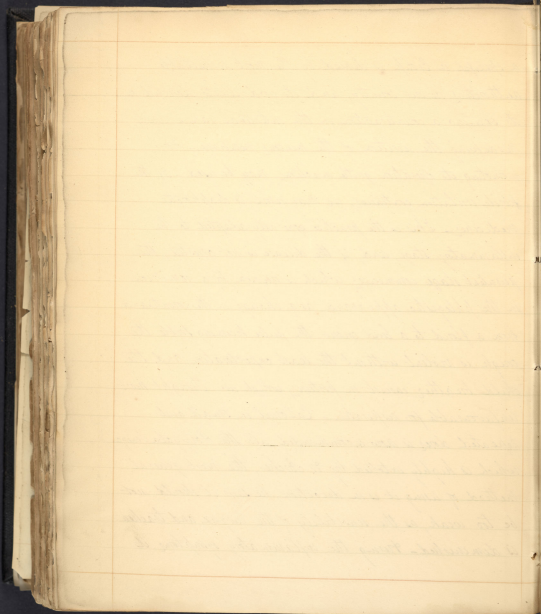
and occasions a determination to the surface of the body -
 Blister from their decided effect in most of the phlegmasia, ought
 always to be used when the symptoms are violent. - To the use
 of Mercury in this disease, the credit is due to Dr. Kuhn and
 without it, we should be deprived of one of the most valuable
 acquisitions in arresting its progress. By Burns it is asserted,
 that Hamilton had given it in every stage of the disease with
 impunity and so great was his infatuation, that he employed
 it to the exclusion of other remedies, he further states that in
 every case where it was given previous to the dropping of the life a
 decided improvement was made on the system and a cure effected.
 In a subsequent publication of Hamiltons these observations
 are denied, as he urges the necessity of the most efficient remedies
 as copious blood letting and Emetics, and appears astonished
 at the celebrity which it has acquired in this country. He
 accounts for it on the supposition, that in different climates
 the same disease is relieved by different means. Dr. Chapman
 thinks it a valuable remedy, but says it ought not to
 be used until the violence of the disease is suppressed by



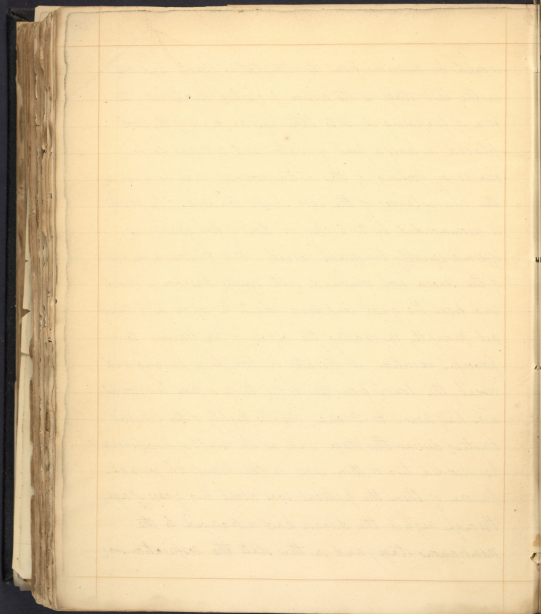
general and topical bloodletting, this is known by a diminution of the dyspnoea and the frequency of the cough, and at this period its prompt action is witnessed. The dose of the medicine depends on the age of the patient, to a child of two years old four grains may be given every hour, to one of six months old a grain and a half and this kept up till the evacuating become copious. We should not be deterred from giving it boldly in consequence of the injurious effects which sometimes arise, as it is extraordinary the immense quantity that can be taken without producing salivation. Rush says he has never known it to take place in such children as required its use. This he attributes to its being given in such quantities as to pass quickly through the bowels. In confirmation of what Rush has said, Dr. Physic has given to the extent of half a drachm of this medicine to an infant in one day. - As a remedy it should neither be proscribed by us nor should it have our entire confidence, resort may be made to it at a proper stage of the disease and when our other remedies prove unavailing - Its being



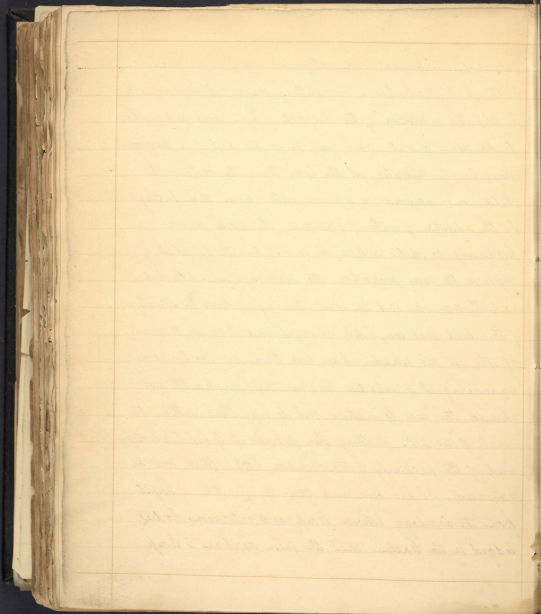
a specific in Croup is desired by the most respectable authorities in our country, and its good effects depend on its exciting a contraction in the intestinal canal and modifying the secretion of the mucous membrane. - For promoting its operation gentle injections may be used. - If the febrile irritation continues, we may resort to diaphoretic medicines. - This is the practice generally adapted to the inflammatory stage, and, if the disease is not arrested, the purulent stage commences, which is known by a remission in the phlogistic appearance, as a change in the countenance from a florid to a livid colour, the pulse becoming feeble, the cough is violent without the least expectation, and the child breathes easiest in postures, which are thought most unfavourable for respiration. - Calomel in small and repeated doses is now recommended, also the Polygaladrops which is highly extolled by Dr. Ferriar, the most general method of using it is in decoction, he says it should not be too weak, as the sensibility of the larynx and trachea is diminished. - During the inflammatory symptoms it



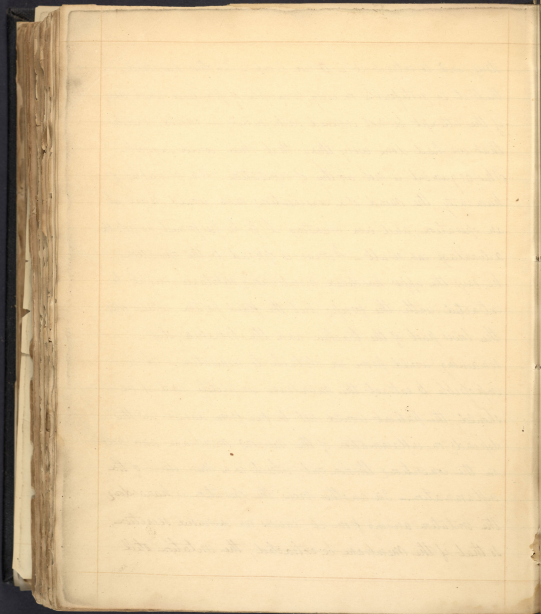
would be injurious from its stimulating effects, and only in the last stage is its active properties developed, the form of preparing it, is to take half an ounce of the root placed in half a pint of water and reduced to four ounces by boiling, of this a teaspoonfull may be given at the circumstances of the case shall demand. The powder is recommended by Dr. Archer in doses of five grains, as offering equally beneficial results - By Dr. Coxe a mixture of the Seneca root combined with squills has been proposed, and from the great confidence which he reposes in it, must act promptly in exciting the vessels of the trachea to a powerful exertion, it operates by vomiting, purging and sweating, the dose is from ten drops to one or more teaspoonful every half hour. Dr. Ferriar speaks highly of the bitartrate of Potash during this stage, and as the result of his experience has recorded two or three cases in the New York Journal. In one of them the patient was about two years of age, through neglect the disease had advanced to the membranous stage, and in this state the respiration was



laborious, countenance livid, extremities cold, accompanied
 with great prostration - bloodletting could not be resorted to,
 he prepared a solution of the Sulphate of Zinc about two drachms
 to an ounce of water and gave it in the dose of a teaspoonful
 every twenty minutes, at the same time the body of the
 child was immersed in a warm bath, made stimulating
 by the addition of water of ammonia, the white vitriol
 producing no cruetic action, he substituted the Sulphate of
 Copper in the same proportion, the membrane was detached
 and thrown up and in about twenty four hours the situation
 of the child was completely changed and it finally recovered.
 If after all our remedies have been tried, our efforts prove
 unavailing, it is contended by some, that we should not
 abandon the case to nature, but do every thing within the
 reach of our art. Nothing then presents itself but Strachotomy
 and of the propriety of the operation, little I think can be
 advanced - It has been said that the operation is useful
 from the analogy between Ovar. and extravasated blood,
 lodged in the bladder, that the false membrane is Ovar.



itself, and to extract it is to cure Croup - Another has said, that it is justifiable on every principle of prudence and, even, if the attempt be not assured with success, we should consider that we had done every thing that skill could suggest - This argument is not worthy of refutation - On principles of humanity, the mind of a conscientious man would recoil at an operation, and even granting it to be performed, no possible advantage can result - Fornier is opposed to the operation, he says the upper hardened membranous substance might be extracted with the forceps, but the fluid portion, which fills the lower part of the trachea and the bronchia, still remaining, would prove an obstacle to respiration - It is impossible to extract the membrane completely, and if we should, the patient would not be free from danger, as this depends on inflammation of the mucous membrane, and not on the concretions thrown out, which is a mere effect of the inflammation - In another view the operation is hazardous, the irritation arising from it, causes an increased secretion, so that if the Membrane be extracted, the irritation still



continuing, will cause a new convulsion, which will produce similar effects. Choyse condemns the operation, saying the thyroid veins are apt to be cut which would suffocate the child, but granting this not to be the case, the forceps introduced into a tube not half an inch in diameter, the membrane cannot be drawn out in consequence of not being sufficiently tenacious, and if it should be extracted, the child would possibly die as is the case after the membrane has been expectorated. In order to render the operation complete, the puriform matter with which the lungs are filled, must be removed and this is impossible - the introduction of a tube can have no effect as the lungs are so gorged with a viscid fluid that the air cannot find access to the air cells. By extracting the membrane, we only destroy an effect of the disease, without removing the cause, so that it will continue to exist. The operation has been performed on various parts of the world, but I believe has no where succeeded.

